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of as having had a polyphyletic origin, in part (Papillella) from the Spirastrosa, though chiefly from the Euastrosa (Suberites derived from Tethyorrhaphis). Since von Lendenfeld regards (p. 210) Tethyorrhaphis as the "Grundform aller Clavulina," he evidently does not take very seriously the idea (p. 206) that the Euastrosa and Spirastrosa have been independently evolved from different Tetractinellid families — though in the paragraph referred to he apparently countenances this belief.

Of von Lendenfeld's ten families, all but the Latrunculidæ and Dendropsidæ are represented in the Adriatic. Of his twenty-six genera, fifteen, represented by thirty species, are here found. Seven new species (*Asteropus incrustans*, *Stelligera nux*, *Placospongia graeffei*, *Vioa topsentii*, *Vioa ramosa*, *Suberites gracilis*, *Astromimus luteus*) are described, and of the twenty-three already described species, seven for the first time have been found in the Adriatic.

In the descriptive part of the work will be found details of interest concerning the histology and skeleton, together with observations in many cases on the appearance and behavior of the living sponge.

H. V. WILSON.

Revised Classification of the Unionidæ. — Students of the Unionidæ will welcome the revision in the arrangement of the species of this group, which Mr. C. T. Simpson has introduced in Mr. C. F. Baker's report¹ on the Mollusca of the "Chicago area." Anatomical features — other than those of the shell simply — are made the basis for the revision, the structure of the marsupia, for example, being employed as a diagnostic character. The genus *Margaritana* is rejected, *Unio* and *Anodonta* are broken up, the old genera *Alasmoodonta*, *Strophitus*, *Quadrula*, *Obliquaria*, *Plagiola*, and *Lampsilis* are revived, and a new genus, *Anodontoides*, is erected, to provide for the new and more natural grouping of the species. The shell of each of the fifty forms is described at length, and in most instances the external anatomy of the animal is also given. The local distribution is tabulated, and the geographical and geological range of each species is reported. Excavations about the city have revealed as fossils many of the species now reported as living in this area. Measurements are given, and data upon variation, habitat, and breeding are quite extensive. It is to be regretted that the introductory discussion of the group is not phrased in the terms of modern morphology, that

¹ Baker, F. C. The Mollusca of the Chicago Area, Pt. I, The Pelecypoda, *Bull. No. III, Nat. Hist. Surv. Chicago Acad. Sci.* (1898). 130 pp., 27 plates.

the anatomical descriptions are in some cases omitted or incomplete, that the keys were not in all cases revised to meet the new classification, and that the limits of Mr. Simpson's contributions were not more definitely marked. We also note that *Atax*, the common Hydrachnid parasite of the clam, is incorrectly reported as *Diplo-dontus*. The plates — half-tones from photographs of the shells — afford abundant illustrations, and are in some cases excellent, though they at times fail to reveal important details of structure, such as the beaks and the hinge teeth. The full descriptions, the abundant illustrations, and the keys make the work a valuable handbook for American collectors and students of fresh-water Pelecypoda. C. A. K.

Rotifera and Protozoa of the Illinois River. — The local and seasonal distribution of ninety-three Protozoa and one hundred and eight Rotifera is given by Mr. Hempel¹ as a result of his examination of towings made during 1894 and 1895 in the Illinois River and its adjacent waters. The results reported afford further data indicative of the cosmopolitan distribution of these groups, and the similarity of the pelagic fauna of the fresh water of Europe and America. Some species occur throughout the whole year, or a greater part of it, while others recur only at stated seasons; some reach a maximum in the spring, others in the summer, and still others in the fall, while some reach this condition only in the winter, breeding abundantly under the ice. The predominance of the Brachionidæ among the Rotifera is noticeable. One new species, *Diffugia fragosa*, is described.

C. A. K.

Diurnal Migration of the Plankton.² — A single series of observations on the quantity of plankton at certain levels in Lake Leman, by Dr. H. Blanc, suggests a considerable vertical movement, especially of the Entomostraca, toward the surface during the night. Catches were made at the surface, and at depths of 20, 40, and 60 meters in water 100 meters deep. The volume of the catch from surface water at 4 A.M. was 25 times as great as it was at 4 P.M. A large increase also occurred in the catch at the 20-meter level, while at 40 and 60 meters there was no considerable change. The afternoon catch at

¹ Hempel, A. A List of the Protozoa and Rotifera found in the Illinois River and Adjacent Lakes at Havana, Ill., *Bull. Ill. State Lab. Nat. Hist.*, vol. v (1898), pp. 301-388.

² Blanc, H. Le Plankton nocturne du lac Leman, *Bull. Soc. Vand. Sci. Nat.*, vol. xxxiv (1898), pp. 225-230, Pl. II.